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ABSTRACT

Noting that sensory impaired children often have poorly developed or ungeneralized concept development that impedes their ability to comprehend stories or content texts, this paper presents a brief description of the learning problems of these children as they relate to the reading process. It then presents implications for teaching reading and a model of concept development. Designed for teachers who feel unprepared for mainstreamed children, the suggested activities offer a "common sense" approach to adapting the curriculum and materials for the sensory impaired child. (Author/FL)

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# CONCEPT DEVELOPMENT FOR

# MAINSTREAMED SENSORY IMPAIRED CHILDREN

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Development of concepts is one of the most important goals of the reading teacher, for without prerequisite concepts children may have inadequate comprehension of what they read. Hearing and visually impaired children often have poorly developed or ungeneralized concepts because they do not receive the clear and complete visual or auditory information necessary to develop adequate concepts. Thus, they may not have the conceptual base required to comprehend reading stories or content texts.

Within our discussion, we will refer to those sensory impaired children who have a mild to moderate loss of hearing and/or vision. Because of their sensory loss, they may display specific behaviors which contribute to learning difficulties. Only those behaviors which seem relevant to the reading task, and require accommodation of reading instruction, are discussed in the following paragraphs. We recognize that it is difficult to generalize the learning problems of sensory impaired children since functional ability is related as much to their motivation, intelligence, social maturity and family background as to their sensory loss. However, it seems important that teachers are aware of possible behavior concomitants.

The visually impaired children within the reading classroom may have poor eye movements, poor binocular teaming, eye-hand coordination difficulties and/or refractive status difficulties. As a result, the children may not be able to focus properly; may have difficulty and/or confusion orienting to pictures, words or letters; may have frequent loss of place in printed materials; may require the additional input during instruction from touch and hearing in order to compensate for limited visual input; may have a short attention span due to fatigue while straining to receive visual information.

The hearing impaired children mainstreamed within the reading classroom probably have difficulty receiving speech and language. Consequently, the children may confuse similarly sounding words or phonemes; may have difficulty pronouncing sounds and words; may get little meaning when reading or be very literal in interpretation of written material because of vocabulary limitations; may have difficulty participating in group or classroom discussions; may require additional input from touch and vision in order to compensate for limited auditory input during instructional sequences; may fatigue quickly because of the need to strain for auditory information.

When they are mainstreamed within the classroom, sensory impaired children can profit from concept development lessons planned for all children. The teacher must, however, adapt these lessons to accommodate the specific learning requirements of children with a sensory loss to provide them with a successful learning experience. Several kinds of lesson adaptations may be required. For example, providing many varied sensory and concrete encounters with a concept will help children compensate for their loss of input from one modality. Systematic focusing on the various concept elements will insure children develop an integrated, unified concept. Requiring children to express their perceptions in dialogue will assist them in integrating and generalizing their perceptions and will also provide evaluative feedback for the teacher. Proper pacing of lessons will help to avoid undue strain and fatigue, while continuous review will insure the required overlearning. Additionally, for the visually impaired children, the teacher will assure that pictorial or concrete representations are clear, well defined and of sufficient size to be seen. The teacher will be certain the children are specifically oriented to pictures, words or objects by having them point to, outline or follow a sequence while it is being discussed. In adapting instruction for

hearing impaired children, the teacher will assure they can hear and/or see to lip read and are consistently "tuned in". The teacher will supply additional oral input using the new concept in a variety of sentence contexts and will require hearing impaired children to use the new concept in context, assuring its correct pronunciation and use.

To prepare students to understand the stories they will read, the teacher needs to survey the reading materials and note critical concepts within the units ahead. Critical concepts are those few concepts that are essential to the comprehension of each story. If the teacher judges that critical concepts are unknown, and story comprehension is not possible, those concepts must be taught prior to reading the story. Many times such concept development can be planned to relate to ongoing content instruction, i.e., a circle can be an important reading concept as well as a critical concept for science and math.

It is our belief that lessons planned to help children develop concepts can best be accomplished by cycling learning experiences. A lesson cycle is initiated when a teacher provides a learning opportunity (input) and children experience a targeted concept which results in some understanding of that concept. Next, children are encouraged, through activities requiring either talking, writing, drama or some creative expression, to use language to explain (output) their perceptions and emerging integration of the concept. Further learning activities continue this cycle of teacher input and pupil output activities. Thus, successive input experiences progressively expand children's understanding of the concept, while interspersed output opportunities expand their receptive and expressive language and provide the teacher with needed feedback.

In the discussion that follows we will describe four stages of concept development using "frog" as an illustrative concept. At each stage of

development, sets of input/output activities which may be used to develop and understand the concept are shared. In an actual lesson, the teacher can choose those activities which will teach the concept and meet the specific learning needs of the children. As these activities are developed within a lesson, it is important that one activity naturally leads into the next to give children a sense of unity and cohesiveness about the experience.

For many of the activities, the teacher can organize small and flexible groups for instruction. There may be times when proficiency in the activities will suggest either homogeneous or heterogeneous grouping.

Since sensory impaired children often have had little school success, analyzing children's learning abilities, analyzing the concept development tasks, progressing in small steps and providing adequate guidance and feedback to the children are essentials in assuring success.

All activities must include opportunities for natural conversation concurrent with instructional sequences. The teacher will need to provide the necessary prompts and cues to afford children the opportunity to utilize developing concepts within such interactions.

Following is the discussion of stages of concept development.

1. Recognition--At this level, children learn to perceive and name the concept.

The following learning activities are designed to introduce the children to the concept and provide a language label for it. The teacher first needs to introduce the children to the selected concept, frog. This can be accomplished by taking the children to a local pond or by presenting several jars which contain frogs. To preassess children's ability to name the frog, the teacher may ask them if they know the name of the selected object. If several children name the frog, the teacher can then confirm that the green object is a frog and ask the children to pronounce "frog".

**Provision for Sensory Impaired Children**

As a means of providing additional input about the frog, the teacher can provide a model and/or picture of the frog for the visually impaired child to hold and touch and match to the real frog. For the child with a prolonged hearing loss who is often described as having inaccurate articulation, the teacher can:

1. Provide a good speech model, being clear and distinct at an appropriate rate.
2. Emphasize anything the child has omitted or spoken incorrectly.
3. Speak close to the ear of the child, if necessary and keep classroom and other noise down when working on speech production.

To further develop language about the concept, the teacher may ask the children to orally compose sentences to be written on their papers or on the chalkboard. While the children draw pictures of the frog to correspond to their sentences, the teacher can visit each student, assessing his/her understanding by asking each child to name the frog and talk about the drawing.

2. Description--The children describe the relevant characteristics or attributes and usage of the concept.

To prepare the children to describe the concept, the teacher can provide time during several days to "experience" the frog. The children can be asked to watch the frogs (in the jars) for several days and collect information to describe the frogs (color, size, how they move).

**Provisions for Sensory Impaired Children**

During this time the teacher can work with sensory impaired children on an individual basis or within small groups. The teacher can discuss the frog with the children by pacing the questions and focusing on one specific topic at a time. For example, each child within the group may be directed to find and describe one body characteristic. The teacher will need to clearly label, define and demonstrate the relevant characteristics of the concept.

After the children have completed their independent study of the frogs, the teacher can ask the children to again observe the frogs in the jar while presenting questions such as the following to stimulate their thinking and descriptive language:

What do frogs look like (color, size, shape)?

Where are their eyes?

How do the frogs move? Can you move in the same way?

Do their feet look different from yours?

Are all the legs the same size? Why do you think frogs have long rear legs?

What might happen if all four legs were the same size?

Do they have teeth?

Do frogs need tails?

The teacher can ask the children to hold the frogs and decide, "How does the frog feel? What more can you tell about how the frog moves?"

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| Provisions for Sensory Impaired Children | During observation and discussion it may be appropriate to pair a language competent child with a student who is less verbal. |
| | The sensory impaired children need to be active participants in the activity, seeing and hearing easily and clearly. Holding the frogs provides a tactile experience which may be especially important for the sensory impaired child who needs additional input to learn the parts and whole of the frog. |

As the children describe the characteristics of the frog, the teacher can categorize and write these terms on large charts, Body Parts of a Frog, The Way Frogs Move, Food Frogs Eat and Places Where Frogs Live.

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| Provisions for Sensory Impaired Children | It is important that the visually impaired children see the charts. Several procedures can be followed to have these children read the charts, i.e., choral reading, independent reading by each child. Those children who are unable to read all the words on the charts can be encouraged to read "frog" and other targeted words each time they appear. |

Several of the following activities may be provided for further study of the concept:

Watch a film about frogs.

Listen to and read a story which is presented on an audio tape.

Talk about various pictures of frogs: habitats, food, stages of growth.

Find and discuss information about frogs found in pictionaries, dictionaries, encyclopedias.....

Listen to and read various stories, poems, riddles about frogs.

Provisions for Sensory Impaired Children — When selecting activities the teacher can consider each child's stronger modality, i.e., overstressing visual information for the hearing impaired child. For those children requiring more structure, it may be necessary to pace them through the selected activities. For example, as children watch a film about frogs the teacher may ask a specific question and stop the film at various intervals to discuss answers to the question.

Following the above activities, the teacher and students can refer back to unanswered questions about the frog to see if they can now be answered. Later, using the vocabulary words listed on the charts, the children can be asked to complete one or more of the following exercises.

Complete cloze exercises.

Write descriptions of pictures,

Write an informational story about frogs,

Write poems or riddles about frogs.

Write frog sentences and illustrate them.

Expand kernel sentences, i.e., "The frogs eat," to such sentences as, "The green, slimy frogs in our jar eat black flies."

Make a film strip about frogs.

Draw and describe personal pictures of frogs.

Take pictures of frogs (using cameras) and write sentences to describe these.

Fingerpaint illustrating how the frogs feel, move,...,.

Provisions for Sensory Impaired Children — If any of the children are slower to grasp the new concept, they can be asked to participate in several additional activities and/or repeat an activity with more guidance and structure on the teacher's part.

3. Identification Level--Children identify and articulate the likenesses and differences of examples and non-examples of the concept.

At this stage the teacher can make a simulated pond and give groups of children a box which contains model frogs and non-frog items. The children will construct the pond by selecting and placing only the frogs in the pond. The goal for this activity is to structure the input and to establish an experience which helps the children unify the concept "frog" and recognize it in its natural context. As the children construct the pond, the teacher may ask each child, "How do you know that you've selected a frog?" The children describe the likensses and differences of the frogs and non-frogs.

Sitting and talking with the groups of children enables the teacher to determine whether they can identify the frog. If any child is unable to do this accurately, it will be necessary to take the child through additional activities at the description level.

The following activities are for children requiring additional experience at the identification level:

The teacher can read stories about frogs and ask the children to decide whether the selected story and/or pictures are fictional or factual. Children explain how and why they made their decisions.

A description of various animal habitats, movements or physical characteristics may be read or told to the children. They select those descriptions related to frogs and then discuss reasons for their choices. At times during this activity the teacher structures the language output of the children by saying, "Can the frog fly?", with the children responding, "No, the frog cannot fly because it doesn't have wings."

Several games may further help the children identify frog and non-frog elements: A rummy-type game in which children match pictures of frogs for a

set; Categorizing games requiring children to find frog and non-frog body parts (trunks, horns, webbed feet) and then "build" a frog.

Pictures of many types of frogs and non-frogs can be shown. The children select the frogs and cut and assemble them into a collage. As children assemble the collage, they describe the likenesses and differences of all the frogs on their collages.

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| Provisions for Sensory Impaired Children | The teacher will need to help the children focus on targeted features of the concept, i.e., the children may need to feel the webbed feet of the model frog and the non-webbed feet of a non-frog model. |
| | It is important that the children understand all related concepts, i.e., fictional, factual, webbed feet, horns, and actively participate by using these concepts in their own language. |

4. Generalization--

A. Interrelating. Children relate the new concept to other known concepts describing the relationship between them.

When discussing frog characteristics, the teacher will help children generalize a relationship between something they know and a characteristic of a frog. The children put on or discuss swimming fins and explain their purpose. In the discussion the children state how the fins are like the frogs' webbed feet in helping them move through the water in the swimming pool. Other relationships may also be considered: how are other creatures which hop like/not like a frog? What is a frog kick in swimming?

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| Provisions for Sensory Impaired Children | These questions are particularly important to guide sensory impaired children who may not "see" these relationships independently. |

B. Generalizing. Children develop a new concept (more abstract or more specific) related to the just developed concept.



Since the frog may also be an important concept in science, the teacher

can ask the children to name related concepts at two different levels: more specific concepts (bullfrog, treefrogs, flying frogs) and a more abstract concept (amphibians). At this time the teacher may follow the concept model again to develop language and thinking about each of these new concepts.

Conclusion--

Including adequate provisions for the mainstreamed sensory impaired children must, as indicated, provide systematic pacing and careful structuring of language activities so relevant information is perceived and properly integrated into a generalized concept. These procedures may require the teacher to give some individual attention to the sensory impaired children throughout the sequence of lessons. When the teacher works individually with these children, others in the classroom can be profitably engaged in concept development activities that are appropriate for their level of competence. In this way the teacher can be assured all children in the classroom have the conceptual base to read and comprehend successfully.

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